



PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference NT1384PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/JP2003/015271	International filing date (<i>day/month/year</i>) 28 November 2003 (28.11.2003)	Priority date (<i>day/month/year</i>)
International Patent Classification (IPC) or national classification and IPC F02M 25/07, F02D 9/02, 9/10		
Applicant	HITACHI, LTD.	

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 8 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 28 November 2003 (28.11.2003)	Date of completion of this report 15 June 2004 (15.06.2004)
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

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I. Basis of the report

1. With regard to the elements of the international application:*

 the international application as originally filed the description:pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____ the claims:pages _____, as originally filed
pages _____, as amended (together with any statement under Article 19)
pages _____, filed with the demand
pages _____, filed with the letter of _____ the drawings:pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____ the sequence listing part of the description:pages _____, as originally filed
pages _____, filed with the demand
pages _____, filed with the letter of _____2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.
These elements were available or furnished to this Authority in the following language _____ which is: the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form. The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. The amendments have resulted in the cancellation of: the description, pages _____ the claims, Nos. _____ the drawings, sheets/fig. _____5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- restricted the claims.
- paid additional fees.
- paid additional fees under protest.
- neither restricted nor paid additional fees.

2. This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- complied with.
- not complied with for the following reasons:

See supplemental sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- all parts.
- the parts relating to claims Nos. _____

Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV. 3.

Claims 1 to 5, claim 6, claims 7 to 9, and claims 10 and 11 have a common feature of an EGR control device for recirculating a portion of exhaust gas into the intake passage of a diesel engine, wherein during EGR control, said device controls a throttle valve in the intake passage and an EGR valve for controlling the EGR flow rate. However, this common feature is disclosed in the document JP 2002-188464 A ((Nippondenso Co., Ltd.), 5 July 2002), and thus, does not constitute a special technical feature as defined in the second sentence of PCT Rule 13.2.

A common feature of claims 1 to 5 is the provision of a first body having a throttle drive motor and a speed reduction gear mechanism and a second body having an EGR valve drive motor and a speed reduction gear mechanism and into which one end of an exhaust gas recirculation passage having the EGR valve is introduced, characterized in that the first body and second body are joined so as to form a single assembly.

However, the inventions described in claim 6, claims 7 to 9, and claims 10 and 11 are not provided with the above structure.

Further, claims 1 to 11, claims 12 to 15, and claims 16 to 19 have a common feature of a motor-driven throttle valve, but this feature is disclosed in the above document, and thus, does not constitute a special technical feature as defined in the second sentence of PCT Rule 13.2.

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Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV. 3.

A common feature of claims 12 to 15 is the provision of a throttle valve, a first body having a throttle drive motor and a speed reduction gear mechanism, and a second body having an EGR valve drive motor and a speed reduction gear mechanism and into which one end of an exhaust gas recirculation passage having the EGR valve is introduced, characterized in that the second body is joined in direct series downstream of the first body.

However, the invention described in claims 16 to 19 is not provided with the above structure.

Thus, as explained above, there is no feature common to all of the claims, nor is there a common problem addressed by all of the claims. Therefore, the claims are not recognized as pertaining to a group of inventions so linked as to form a single general inventive concept.

Accordingly, the International Preliminary Examining Authority considers the following groups of claims as satisfying the requirement of unity of invention.

Claims 1 to 5

Claim 6

Claims 7 to 9

Claims 10 and 11

Claims 12 to 15

Claims 16 to 19

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V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-5	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	1-5	NO
Industrial applicability (IA)	Claims	1-5	YES
	Claims		NO

2. Citations and explanations

- Document 1: JP 2002-188464 A (Denso Corp.), 5 July 2002
- Document 2: JP 2002-256902 A (Hitachi, Ltd.), 11 September 2002
- Document 3: JP 2000-136760 A (Aisan Industry Co., Ltd.), 16 May 2000
- Document 4: JP 2003-286877 A (Nissan Motor Co., Ltd.), 10 October 2003
- Document 5: JP 02-276914 A (Hitachi, Ltd.), 13 November 1990

Claim 1 and claims 4 and 5 do not involve an inventive step in the light of document 1 cited in the international search report, document 2 cited in the international search report, and document 3 cited in the international search report.

A EGR control device for a diesel engine, characterized in that a throttle valve and an EGR valve are driven by a drive motor through a speed reduction device, and the throttle valve drive speed reduction device and the EGR valve drive speed reduction device are both disposed in a common valve housing, is disclosed in document 1. Further, a throttle valve control device for an engine, characterized in that a circuit board for driving/controlling a throttle valve is provided inside a

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housing, is disclosed in document 2. Moreover, the driving of a throttle valve and an EGR valve using separate motors per se is nothing more than a known technique, as disclosed in document 3 and elsewhere. Thus, a person skilled in the art could easily conceive of providing a circuit board for driving/controlling a throttle valve inside a housing in the EGR control device for a diesel engine disclosed in document 1, and the driving of the throttle valve and the EGR valve using separate motors is merely the substitution of the known technique disclosed in document 3.

Further, the consolidation of connectors is disclosed in document 2 (page 3, left column, lines 16 to 22).

Moreover, the control of a throttle valve and an EGR valve using an ECU is nothing more than the application of common technical knowledge in this technical field, as shown in document 1 (page 5, right column, lines 21 to 31).

Claim 2 does not involve an inventive step in the light of document 1, document 2, document 3, and document 4 cited in the international search report.

A diesel engine provided with a throttle valve and an EGR valve, characterized in that during regeneration of a diesel particulate filter (DPF), at least one of the throttle valve and the EGR valve is controlled in order to control the excess air ratio, is nothing more than a conventional feature in this technical field, as shown in document 4 (claims 8 and 9).

Claim 3 does not involve an inventive step in the light of document 1, document 2, document 3, and document 5 cited in the international search report.

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A control device for an engine, characterized in that a plurality of control devices are arranged on a single substrate, thereby reducing the number of components used and improving noise resistance, is nothing more than a conventional feature in this technical field, as shown in document 5.